ABSTRACT

A method for preparing water-stable semiconductor nanocrystal complexes that can be stably coupled to tertiary molecules using a self-assembled coating of diblock polymers. The diblock polymers have hydrophilic ends containing hydrophilic functional groups and hydrophobic ends containing hydrophobic functional groups. The diblock polymers are assembled around a semiconductor nanocrystal having a lyophilic surface outer layer. The diblock polymers are further crosslinked via bridging molecules that link adjacent diblock polymers through the hydrophilic functional groups of the hydrophilic ends of the diblock polymers to form a semiconductor nanocrystal complex. The functional groups present on the outer surface of the amphiphilic diblock polymer may serve as attachment sites for coupling tertiary molecules to the semiconductor nanocrystal complex.